INFORMATION POLICY AND INFRASTRUCTURE IN AUSTRALIA

MICHAEL MIDDLETON

Senior Lecturer, School of Information Systems, Queensland University of Technology,

GPO Box 2434, Brisbane, Australia, 4069.

Internet: m.middleton@qut.edu.au

This paper was published subsequently in:

Journal of Government Information 24(1): 9-25, 1997 and may be retrieved in published form from the publisher's site Elsevier.com, or directly from the ***Science Direct*** database

INTRODUCTION

Infrastructure, when associated with information in Australia, has been understood for some time by many who had an interest in information policy to be confined to the relatively narrow area of telecommunications. For example, a review of policy development in 1985 by Judge [1] focused on information services for access to recorded knowledge, and specifically excluded the communications networks. This perspective has changed over the last ten years.

Until the early 1980s information policy discussion was concentrated within particular professions or sectors, with little interpenetrating of the respective consciousness of fraternities such as those in the computing, records management, broadcast media, library, and journalism professions. Technological convergence has eroded the divisions between these groups over the last decade.

The Australian Labor Party (in power in Australia since early 1983) had an information policy platform which, when it was elected to government, led to the distribution of a discussion document [2]. This paper made reference to a public infrastructure consisting of physical resources such as broadcasting, telecommunications and libraries, and an intellectual infrastructure of education for underpinning an information economy.

A national information policy document did not arise from this paper. The Government's policy may have been not to have a policy. Several years later, through a bipartisan House of Representatives Committee, an 'agenda' for a national information policy was documented as the Jones Report [3], but this in turn did not lead to policy statements [4]

The Jones Report usefully brings together what it terms the elements (telecommunications, privacy, copyright, etc.) of a national information policy, but as Fist [5] has pointed out, it does not provide for a plan of action. Critics of an absence of Australian information policy have often ignored the fact that elements of the policy are embodied in recent legislation. In Australia, this applies to areas such as copyright, privacy, telecommunication, broadcasting and information repositories. Inevitably though, the legislation lags behind in many areas that have been affected by information technology development.

When considering the terminology of information infrastructure, it is instructive to look at the categorization of information resource entities adopted by McLaughlin and Birinyi [6]. They distinguish commercial entities on a grid with one axis having conduits and content at its extremes,

and the other axis having products and services at its extremes [7]. A decade later, the National Information Infrastructure Advisory Committee appointed in the US by the Clinton administration and reporting the following year, saw information infrastructure as being something that encompasses information appliances, content and people [8].

This terminology has not been used in Australia. The sentiments of a flurry of recent government committees however, have pointed to the integrative nature of current policy development, at the same time distinguishing information production (content), from the information conduit (carriage).

AUSTRALIAN LEGISLATIVE AND POLICY FRAMEWORK

Although most planning and regulation in the country has been carried out by federal government bodies and by Commonwealth legislation, there is activity at all three tiers of Australian government. For example there is legislation relevant to information policy in several states, such as freedom of information legislation. For this, a lead was given by the State of Victoria which introduced its Act in 1982 [9], the same year as the federal government. There are also a variety of policy initiatives initiated by other state governments.

State and Local Government

The government of the State of Victoria has information technology management guidelines [10], and a policy [11] promoting departmental use of the Internet. The State of Queensland created an Information Industries Board to implement the Strategic Plan [12] adopted by its government in early 1992, to promote public and private sector strategic use of information technology through export, development, investment attraction, infrastructure support and the like. Queensland also has an Information Policy Board within its Premier's Department.

The State Government of South Australia recently released its IT2000 concept [13] that envisioned such developments as its software and IT services sector achieving 40 percent of its revenues through exports, a 'world-class IT industry in five niche areas', and multinational IT companies investing locally as part of their global strategy.

At the third tier or local government level, a well known example of information strategic planning is that of the Ipswich City Council. In February 1993 the Council adopted an economic development program that endorsed the principle of development led by information technology as a key strategy. This led to a joint venture with the Centre for Information Technology Research of the University of Queensland, and the establishment of the Global Info-Links [14] project, housed with the city's library in what the Council calls the Global Information Centre located in the Ipswich Central Business District. It is designed to function as an information technology and telecommunications hub, and is linked to the World Wide Web.

Federal Government and Information Industry

Before looking specifically at the present situation relating to carriage and content, it is necessary to consider the governance and regulatory framework within which the information industry is operating. One must therefore consider the computing and various media distribution environments such as telecommunications, broadcasting and newspapers, as well as information repositories such as archives and libraries.

The computing industry has not been subject to legislative regulation for computing *per se*, but there have been influential executive areas of government that have had their part to play. For example public sector electronic information transfer has since 1988 (federal) and 1990 (state) been developed under the umbrella of GOSIP [15] adopted by federal and state level government and in consultation with Australian Information Industry Association and Standards Australia. GOSIP has been promoted by the Information Exchange Steering Committee of the Department of Finance [16] and among other things:

- requires all suppliers to offer products which comply with GOSIP when responding to Commonwealth tenders from 1 August 1991;

- requires Commonwealth agencies to implement OSI standards in their networks; taking into account all aspects of the network, unless there are compelling reasons to do otherwise;

- does not seek retrospective conversion of existing networks to OSI standards;

- takes into account the availability and cost effectiveness of OSI compliant products - in comparison to their proprietary equivalents;

. seeks continuously to test the market for the availability and cost effectiveness of products;

. requires all agencies to develop migration plans as part of their IT plans for conversion of their existing networks to OSI;

. places responsibility with the agency for implementing the policy and being accountable for it; and

. seeks the conversion of all networks to OSI in a manner and time frame that is cost effective taking into account the availability of products and the investment in existing systems, including people.

. sets a preferred priority order for the application of standards is as follows:

1. international standardised profiles and international standards including stable draft international standards;

2. national standards including stable draft national standards;

3. de facto/ industry standards where the specifications are publicly available and are not "owned" by a single supplier (e.g. TCP/IP, OSF and UI standards);

4. de facto/ industry standards where the specifications are publicly available and are widely accepted and adopted by many suppliers (e.g. MS-DOS, Microsoft Windows, UNIX, SNA); and

5. remaining standards (proprietary).[17]

GOSIP has been placed in the broader framework of the Australian Government Guide to Open Systems [18] which defines open systems architecture based on the adoption of international standards. It is aimed at providing "a definition of the concept of Open Systems as it is being applied in Federal Government computing, and giving guidance to departments and agencies in formulating strategies to move their computing platforms to a more open environment". As Barry [19] has noted, it was not until IESC put forward the view that TCP/IP could be acceptable as an alternative to the international OSI standards that its deployment became acceptable within government departments.

In contrast to computing, the electronic media (but not the print media) have been more subject to legislative regulation [20]. The Broadcasting Services Act was enacted in 1992 [21], and in the words of Chadwick [22] recast the broadcasting model that had served Australia for 50 years. This legislation transformed the orientation of the previous Broadcasting Act [23] to emphasize the treatment of broadcasting as an industry, rather than the earlier approach modeled on the basis that broadcasting was a public trust, and that licenses to use a scarce public resource would be allocated on the basis of comparative merit to applicants who must conform to requirements intended to produce programming of a certain quality. The present legislation acts to increase the availability of services, and increase the amount of self-regulation by broadcasters (previously subject to the Australian Broadcasting Tribunal). The Australian Broadcasting Authority which replaced the ABT has investigatory rather than regulatory powers, but does have the responsibility of classifying

services, which renders licensees subject to different degrees of regulation. It therefore is still able to shape the operations and economics of the broadcasting industry [24].

Commercial channels still have obligations concerning children's programs and Australian content, and there are also regulations concerning shareholding in channels relating to the extent of foreign ownership, and to cross-media ownership with respect to radio stations and newspapers. The current legislation addresses broadcast and narrowcast programs, but specifically excludes services that are text or data, even when they include images. On-demand point-to-point facilities such as dial-up selection of audio or video are also excluded.

Australia's two national broadcasting services are also covered by enabling legislation. The Australian Broadcasting Corporation (ABC) by an Act [25] that gives it a charter independently to carry out many roles relating to enrichment of Australian culture and contributing to national identity, and leaves it to the Corporation to balance those roles. It does this via its national television network, national FM and AM radio networks and Radio Australia. It is presently facing a highly problematical role in the developing cable television and broadband service environment. The Special Broadcasting Service is defined by an Act [26], the genesis of which is a good indicator of the way successive Australian governments have tried to define the place of multiculturalism and ethnic diversity in the electronic media.

The print media have not been legislatively regulated nationally since federation, at which time regulation of print was passed to the states. The states have not tried to regulate the print media. The press is of course subject to laws on matters such as defamation and copyright, but has

essentially been left to self-regulate. There have been examples of charters of editorial independence established in some institutions such as the Fairfax Group [27]. The Australian Press Council which is comprised of representatives of the newspapers and journalists, has developed a set of ethical principles, and the professional union of journalists, now the Media Entertainment and Arts Alliance has established a code of ethics.

There is no Bill of Rights in Australia relating to freedom of expression for non-political material, but a recent High Court judgment in relation to a defamation case brought against a newspaper for publishing a letter critical of a member of parliament, indicated that freedom of communication is implied in the Australian Constitution in relation to political and government matters [28].

Australia, since federation, has supported monopolistic government control of information carriers. Despite the Davidson Committee of Inquiry of 1982 [29], that recommended much greater private sector involvement, and a review of telecommunications policy in 1987 that enabled some competition in the customer equipment market, it was not until its 1991 Telecommunications Act [30] that the government made provision for competition. There are now two general carriers and three mobile carriers in a transition period prior to the introduction of competitive service provision and further deregulation after July 1997. The former Telecom lost its monopoly, and in its new manifestation as Telstra , it now competes with Optus Communications as a general carrier.

The Communications Minister recently announced [31] that under the new provisions, carriers controlling access to facilities that provide services to the Australian public will be required to

interconnect all other carriers and service providers, and guarantee access to customer equipment and subscriber management systems, and that the new regulatory regime will provide a seamless and fully-fledged open access regime. Interconnectivity over the public telecommunications network is to be assured and service providers are to be assured of access to carriage services. The government has concluded that sustainable competition could not be achieved if competitors are dependent upon rival infrastructures [32]

The Radiocommunications Act [33] deals with the management of the radiofrequency spectrum, and establishes a Spectrum Management Agency that administers the tradable licenses that are available.

Other significant institutions that are involved in the information industry are the archives, regulated at the national level by the Archives Act [34] (New South Wales and Tasmania also have state Acts), and the libraries. The National Library of Australia (NLA) is enabled by the National Library Act [35]. There is legislation in different states pertinent to the respective state libraries and public libraries, usually as a Libraries Act, but also to some extent through Local Government Acts of state parliaments.

Carriage

Carriage of information refers to the principles governing transfer of information. The GOSIP model has already been referred to, but what policy governs aspects of carriage such as security,

processing of commercial transactions via electronic data interchange, management of electronic records, technology platforms, etc.?

With respect to technology platforms, analysis has been carried out by the Communications Futures Project [36] in an 'attempt to construct and place in the public domain an economic framework for assessing the forces driving Australian communications network evolution'. The group considered four technology platforms: direct broadcast satellite, multipoint distribution system, hybrid optic fiber coaxial cable, and asymmetric digital subscriber line. In their final report, the group anticipated considerable diversity in service provision. They also noted:

> For urban areas, at least in the short term, a number of different delivery platforms are likely to serve the Australian pay TV market. The strategic role of telephony revenues points to the possibility of a dual rollout in some densely-settled urban areas. In the longer term, it is likely that cable networks may become the chief delivery platform for residential services.
>
> This is particularly likely if the demand for interactive services and broadband communicative services is large relative to pay TV services so that significant economies of scope can be derived on cable networks between these services and pay TV services. The extra services available on cable, and the reduction in costs of pay TV services that these economies of scope might allow, point to the possibility of a single, or at most two, long-term networks in urban areas.
>
> A key concern to government could be possible threats to competitive access to the new networks by service and content providers. With the development of interactive services, there is likely to be a large number of service and content providers seeking access to the networks, and this is likely to require sophisticated access and pricing (interconnect) rules.

> Video, data, sound and voice will be largely indistinguishable on the new digital networks and it will become difficult or impossible to maintain the current pricing structure for these services on an integrated network; cross-subsidisation by and then of telephony services may happen.
>
> Subsidies by government for rural and remote communities network are thought to be more than a billion dollars per year to avoid the rural-urban divide. [37]

Much of the other policy in this area is not specific to particular types of information media, and is covered by legislation such as Evidence Act [38] in relation to material that is regarded as documented and that may be submitted in evidence, and the corporations law for settlement of stock exchange.

Records management is an area of considerable significance in relation to both carriage and content of information. From the viewpoint of a carriage of electronic records, it is subject to the existing legislation without there being specific provisions for electronic records.

Content

The most significant published policy has been the government's 1994 Creative Nation statement [39], a wide ranging federal document spelling out the Government's perception of its role in Australian cultural development, and outlining financial support for cultural activities.

Content has been seen by the government as the essential element in the broadband and multimedia environment. This was given substance in a report [40] in which it is estimated that, by the end of the decade, the Australian domestic interactive multimedia market could be worth $A2 billion to $A3 billion, and that Australian interactive multimedia exports could be worth more than $200 million by 1997-98.

A policy has been established in an endeavor to build a critical pool of talent with multimedia skills, by fostering dialogue and interaction between the traditional content producers and the software experts, with emphasis on turning creative ideas into commercial product. The goal is the creation of a dynamic multimedia industry producing Australian content for local and international consumers, using current strengths in creating for film, literature, music or art audiences.

The emphasis of Creative Nation is on content, thus for example in relation to film, television and radio:

> The Government will continue to support the development of the Australian film industry by:
>
> . regulating local content on television;
> . providing funding for the production of Australian films and television programs, together with taxation incentives; and
> . working to ensure that international trade liberalisation does not jeopardise cultural objectives.

In recognition of the importance of developing programming to reflect Australia's multicultural society, the Government will provide $13 million over four years to SBS to commission high quality Australian programs.[41]

and in relation to multimedia:

Not too many years ago, policy in respect of information, computing, telephony and broadcasting would have been seen purely in an industry or service policy context. The focus would have been on hardware and its application to the means of production and distribution. The emphasis was almost exclusively on efficiency and productivity.

Today, information technology having advanced so rapidly, offers a wide medium for the exchange of information and ideas. Text, graphics, sound and image can now be deployed to provide not simply data but concepts and understanding, creative elements that can expand horizons and devices that can engage the mind in contemporary activity.

Information technology, and all that it now offers, has crossed the technical rubicon into the realm of consciousness, to the realm of culture. Multi-media today gives us instruments which allow us to shape information in so many forms that they can become an integral part of our life's experience.

This is why the imperatives of the information age and some of its opportunities are addressed here in the context of creative and cultural policy. Interactive multimedia has the potential to become a new force in education, art, culture and service and the biggest information business in the world. It will change the way we communicate, the way we learn, the way we do business, the way we create, the way we live our daily lives.

> Against the background of the Commerce in Content report, the Government has decided to take five specific and complementary measures costing $84 million over a four-year period. They are:
>
> . the creation of the Australian Multi-media Enterprise;
> . the establishment of Cooperative Multi-media Development Centres;
> . the initiation of a series of national Multi-media Forums;
> . the commissioning of CD-ROMs involving material from our major cultural institutions for Australian schools under the Australia on CD program; and
> . specific assistance to foster our film agencies' move into multi-media.
>
> The Government will commit up to $56.5 million over nine years to establish the Cooperative Multimedia Centres and provide them with initial funding of up to $2 million per year for seven years.
>
> The Centres will assist the education sector and the broader Australian multi-media industry to produce multi-media titles for domestic use, and to develop the Australian market as an export platform. They will offer education, training and professional services, access to state-of-the-art equipment and facilities, access to leading-edge research and development, and assistance with the handling of issues such as intellectual property and product testing and evaluation. [42]

Creative Nation has been generally well received, although Cooper [43] has raised questions about the direct subsidy of the cost of creative endeavor, the propriety of emphasizing training for production in preference to producers of material, and the extent to which cultural bureaucrats should make creative choices.

Creative Nation addressed many other matters concerning information and its delivery. With respect to copyright the report reaffirmed the Government's commitment to fair compensation for use of creative work per medium of copyright legislation, and indicated that it would accept the recommendations of the Copyright Convergence Group that it established to examine how the existing Copyright Act [44]should accommodate the needs of the broadband and digital delivery environment. The Act is presently being reviewed by the Copyright Law Review Committee with a view to simplification, reforming it to become technologically neutral, and introducing a distribution right for tangible material to complement an electronic transmission right.

Reference is also made to delivery of courses offered through the Open Learning Agency of Australia (OLAA) [45] through an agency to be jointly managed by the Open Learning Technology Corporation (OLTC) and the OLAA. The OLTC is a company [46] to facilitate the development of delivery systems for open learning. More recent developments indicate that this initiative will be subsumed within the national education network (EdNA)

Access to information for all Australians is emphasized as an important element of Commonwealth cultural policy, and reference is made to the national collection of library and other cultural materials, built through collaboration between commonwealth, state and local government libraries, museums and galleries. Specific reference is made to the NLA's establishment of the Distributed National Collection office. The office encourages collaborative collecting of library and other materials of national significance, and records them in a National Bibliographic Database, identifies national collection strengths and weaknesses, and monitors, from a national perspective, agreements between libraries covering collecting responsibilities. The preservation of these

materials as part of the national heritage is being further supported by the National Preservation Office, established by the NLA in 1993. The NLA in association with the National Library of New Zealand, is also carrying out a National Document and Information Service project (NDIS) [47] to be marketed in Australia as 'World 1', for identification and delivery of information materials.

The Australian Archives [48] is seen as central to the formal structures of the archives profession, and as pursuing strategies to integrate existing automated finding aids for archival materials and developing the functions of these facilities. The Archives policies have considerable significance for records management practice. Records management is a discipline that must be cognizant of legislative material such as the Archives Act, but also more wide ranging legislation such as the Privacy Act and the Freedom of Information Act [49], each of which impinges upon practice.

Policy goes further than legislation, however. A document on electronic documents management [50], has had some influence in Australian Public Service circles. It gives guidance for electronic document management within the framework of an information management decision model, and a document management life cycle model. It itemizes essential features of electronic documents that should be recorded. It also identifies critical success factors such as clearly defined and consistent agency policies, and procedures, and easy access to agency standard information management tools.

EVOLVING GOVERNMENT POLICY

Foundations

Activity in policy formulation in recent times owes much to committees of inquiry established by different arms of government that have laid the foundations for federal government policy. These include the ASTEC inquiry into high performance data networking, resulting in the Networked Nation [51] for which a summary Government response is available [52], and the deliberations of the Broadband Services Expert Group. BSEG released both an interim report [53] and a final report [54] considering the ramifications of delivery of broadband services to homes, businesses and schools. The Information Technology Review Group has also influenced policy, more specifically with respect to information management and information technology management within the commonwealth public service.

Broadband Services Expert Group

BSEG in its interim report argued that broadband services have the potential to transform the way Australians live, work and play, and that the existing communications system provided a good basis for future broadband networks.

Although these are already being developed, with carriers announcing plans for broadband hybrid fiber-coaxial cable networks, BSEG felt that government could stimulate a 'creative

infrastructure' to take advantage of opportunities available in content creation, infrastructure development and services provision.

Access in areas of low population density not supported by commercial provision could be provided through institutions such as schools, libraries, medical facilities and community centers via a range of delivery methods, appropriate to particular conditions - satellite; hybrid optical fiber-coaxial cable; MDS (microwave); and asymmetric digital subscriber line (video delivery using existing telephone lines), with evolution of broadband cable a staged process, from one-way analogue through digital and two-way systems to switched broadband services.

Concerns were raised in the report about the impact of broadband services, including privacy, copyright and censorship. It was considered that networks should be designed to enhance individuals' control over uses of information about themselves and, unless there was a strong case to do otherwise, current community standards should apply to broadband networks.

In the final report a national strategy for new communications networks was proposed based on the three elements: education and community access; industry development; and the role of government.

The recommendations were wide ranging, for example:

. Links to schools and other community centers:

with the spread of broadband infrastructure, broadband links be provided to all schools, libraries, medical and community centres by the year 2001, that Cooperative Multimedia Centres should also be linked to this network, that in the interim, schools and libraries be connected to available narrowband digital links for access to information services such as the Internet, and that connections be funded on a dollar-for-dollar basis by the State/Territory and Commonwealth Governments. [55]

. National strategy for broadband networking in education:

development of a national strategy for broadband networking in education in anticipation of the extension of high capacity links to educational institutions by 2001, and that Open Net be funded to administer a program of pilot projects on broadband services such as the sharing of visual resources through, for example, image libraries. [56]

. Industry development plans:

the Government require all cable network operators involved in broadband service provision to implement industry development plans for the telecommunications supply industry. [57]

. Local content:

that providers of broadband entertainment and information services be obliged to commit at least 10 per cent of their expenditure on content to new Australian content, the obligation to be reviewed by the year 2000. [58]

. Open access to networks:

> that once interactive services develop, the communications regulatory regime should promote open and equitable access arrangements for users, service providers and broadband carriers (recognising the necessity of a period of transition from pay television to broadband services to ensure there is no delay in the roll-out of cable in Australia). This should be based on diverse and flexible pricing arrangements, pricing transparency in the provision of carriage and content, and commercially negotiated connection charges. [59]

. Privacy

> that the privacy of users of advanced networks be protected by developing a self-regulatory scheme for network participants within the framework of the *Privacy Act.* [60]

The BSEG also recommended the establishment of a National Information Services Council.

ASTEC Inquiry and response

The Australian Science and Technology Council inquiry was established to examine Australia's requirements for national research data networks, including their use by universities, government research organizations, education and industry, and to examine the role of these networks in providing data services for the wider community (including international developments), and the provision of such services.

The government did not support ASTEC's proposal to establish a not-for-profit consortium to develop and fund a national information network, preferring to see a devolved 'community of

networks' provided by a range of service providers. AARNet (the Australian Academic and Research Network), the Australian Internet manifestation to that point in time, would remain a key part of the national information services infrastructure.

A centralized approach to governance has therefore been avoided, however from the government's response:

> The Government also has an important role to play generally in information services in Australia, in the leadership and vision it shows, in its own use of information services and networks to deliver better services to its clients, and in its role in setting the regulatory environment for communications. To provide national leadership in this area, the Prime Minister has established a National Information Services Council, to discuss issues associated with the widespread adoption of information services and technologies. [61]

The National Information Services Council formed under the auspices of the Prime Minister's Science and Engineering Council met for the first time in Canberra in August 1995. In the Agenda documents [62] that have been made available, the Prime Minister said that NISC will be a high-level discussion forum dealing with socioeconomic issues associated with growth and widespread adoption of information and communication services and technologies. Moreover, it will provide government with access to expert views on opportunities and marketplace developments and their importance and potential for the country, and that it will enhance awareness in government and in the community of current market developments by emphasizing their relevance to broader economic and social objectives. The working papers prepared for the meeting were an effective discussion of the issues that must be addressed as national information infrastructure is developed.

ASTEC also sought funding for development of on-campus networks (which was not accepted by the government on the basis that institutions should prioritize this within their existing budgets), and high-performance computing and communications (HPCC) acquisitions (which has been supported through research infrastructure funding, and for which a HPCC plan is under consideration by the government).

The government accepted in principle the ASTEC recommendation that relevant ministries including the Minister for Industry, Science and Technology, promote and fund the use of global electronic information and communication services in selected programs. These would include the AusIndustry and BusinessLink initiatives. They would aim to facilitate better technology diffusion, especially to small and medium-sized enterprises in connection with the research community, to broaden industry and commercial access to national and international markets, including programs aimed at the export of Australian electronic network resources and services, and to stimulate Australian industrial research and development in the generation of new electronic network services.

ASTEC envisaged an information services task force be used for developing and coordinating a government information delivery program. This mechanism is already in place. A Commonwealth State Internet Working Party (CSIWP) was established by the joint Commonwealth/State Government Telecommunications and Technology Committee (GTTC) in September 1994 to facilitate Commonwealth and State agencies' Internet use.

CSIWP [63] has the role of documenting existing government Internet initiatives, preparing a directory of government information provided via the Internet, developing a consistent approach by governments to Internet services, raising awareness of security issues in connecting government and public networks, and encouraging all levels of government including the Commonwealth to provide network entry points (Home Pages), with at least 20 percent of all government agencies contributing information onto the network by the end of 1995.

To facilitate access and organization, CSIWP has developed an official hierarchical information framework that, at its highest level, is based on the Australian Governments' Entry Point [64]. At the next level of the framework, each government is responsible for establishing government home pages which, in turn, point to the information being provided by their respective agencies. Each agency is responsible for its own information. The state and territory governments have established their entry points, and the Commonwealth Government Entry Point is hosted by the NLA.

Agencies are being encouraged to cooperate and provide pointers to other government agencies servicing similar client groups to avoid duplicated effort. Despite this, duplication exists. For example, the NLA entry point has much in common for commonwealth-level links with pointers established on the Office of Government Information and Advertising (OGIA) server [65] also maintained in Canberra.

CSIWP has prepared material giving guidance [66] on to the preparation of Internet information by government agencies.

Other options for extending community access to networked information are also being pursued through community centers such as libraries and through departments such as Social Security. An example is the Community Information Network (CIN) pilot project of the Department of Social Security [67]. The CIN, begun officially in July 1995, is an Internet-compatible network which provides, in 300 sites in Tasmania and other pilot areas, free access to a range of government and community information, and interactive communications facilities (e-mail and bulletin boards). The CIN is reached through local access points equipped with computers and modems, and through direct dial-up from businesses and homes using a computer and modem.

About 60 libraries are involved in CIN. The Government also announced in Creative Nation, a proposal to work with other tiers of government to provide access to networked services for Australians through the country's 1,400 public libraries. An interdepartmental working group has been established to examine the role of libraries in developing a cohesive approach to making electronic information accessible to the public.

The fifth of ASTEC's recommendations, and one that was given support by the government, was that the Minister for Schools, Vocational Education and Training raise with state and territory Ministers for Education the desirability of a national study to investigate the potential impact of increased use of electronic communications technologies, including Internet-type services, in primary and secondary education.

A study of the use of electronic networks in schools was initiated at the November 1994 meeting of the Ministerial Council on Employment, Education, Training and Youth Affairs (MCEETYA), as an investigation of education and training needs with regard to the future use of a broadband services network, and in April 1995 MCEETYA agreed to a broad framework for the establishment of a national education network, EdNA. It was agreed that such a network must offer Australia wide coverage, avoiding discrimination on the basis of geographical location, and must be subject to an appropriate governance structure. Ministers also agreed to explore the advantages which could flow from a joint approach to the purchase of reception equipment (personal computers and associated infrastructure) necessary for educational institutions to take full advantage of information networking.

Seed funding for the establishment of EdNA was provided by the government. It is being governed by the OLTC, which is responsible for managing the development of educational and technical standards for delivery, encouraging development of products and services, defining education and training sectors' needs and ensuring they are met, and communicating user needs to providers of network services [68]. EdNA is expected to offer national coverage, to provide a directory of educational services and an interactive messaging service, which will be accessible at affordable rates by teachers and students from educational institutions or from home. As it is developed, additional services and information may include (with the advent of broadband services) computer mediated learning, multimedia, and video on demand. It is expected to facilitate educational services and material developed in Australia to be used both internationally and domestically.

EdNA has subsumed other networking initiatives such as Open Net (or has used Open Net as a first stage in EdNA). Open Net was established late in 1994 with a federal government mandate to bring modern electronic infrastructure to open learning, and launched in May 1995 as Open Net Pty Ltd - the Education Network for Australia [69].

Information Technology Review Group

The Information Technology Review Group's report is of significance because it was given a brief to consider trends in information technology and its application within the federal government. This committee was set up by the Minister of Finance and was also asked to identify state government and overseas initiatives to secure economies of scale in areas such as mainframe consolidation and outsourcing by adopting a "whole of government" approach, and to assess the applicability of these approaches in the Commonwealth.

Among its many recommendations [70] was that the government adopt the concept of a Chief Information Officer located in the portfolio of the Minister for Finance. This has been adopted and the position appointed. The Group also made recommendations with respect to many aspects of information management, a number of which would be the responsibility of the Chief Information Officer, for example:

. On management initiatives:

The Chief Information Officer should, in conjunction with the Australian Bureau of Statistics, design and establish a database of government information technology resources and use across agencies. [71]

. On outsourcing guidelines:

Before choosing activities to be outsourced, government agencies should develop business plans that define what elements of their information technology investment are considered core business. [72]

. On planning mechanisms:

The cycle for developing corporate information technology plans should remain at three years but they should be reviewed annually and made available to industry and co-ordinating departments electronically. The Plans should:

demonstrate a high degree of integration with the business objectives of the agency and the Australian Public Service as a whole;

focus on serving client needs and introducing innovative and effective government service through information technology;

justify information technology expenditure and resource commitments on the basis of their contribution to the overall goals of the agency and the Australian Public Service;

encourage a working "partnership" between the information technology manager and the business manager within the Australian Public Service. [73]

. On encouraging innovation:

Pilot projects that demonstrate concepts such as electronic one-stop shops be encouraged through budget initiatives and lead agency arrangements to accelerate change in the Australian Public Service view of client service. Agencies should be offered incentives such as sharing savings generated by such initiatives. [74]

. On people issues:

Common information technology measuring and monitoring tools and standards should be introduced across the Australian Public Service and a formal information technology review process be adopted within agencies to measure performance against objectives. Agencies considering re-engineering counter staff operations should factor into their business plans training and support programs for personnel. [75]

. Cross-Agency Activity:

A whole-of-government repository of expertise needs to be established by the Chief Information Officer to provide ongoing assistance to agencies involved in outsourcing. [76].

CONCLUSION

Although the Jones Report, did not produce a policy framework or legislation., the government did produce a response to this report 18 months later acknowledging that information in its many forms was taking an increasingly central place in society, and supporting Jones' conceptual approach, but it did not go so far as to adopt a national information policy [77]. Nevertheless,

although little direct reference has been made to the Report within the policy initiatives of the last few years, many of the 21 elements identified by Jones have been addressed, possibly because the 'synergy provided through effective networking' referred to in both report and response, has become more apparent. However debate and policy formulation on some elements such as transborder data flows, sovereignty of information and production and distribution of scientific and technical information remains inchoate.

Meanwhile, active policy formulation continues in other areas. The government has sought input after distributing a consultation paper on the regulation of on-line information services. This arose from concern about the content of BBS raised by the government's Bulletin Board Systems Task Force and endeavors to address the problems in relation to a wider range of services than considered by the Task Force, with a strategy that has three key elements:

> a self-regulatory framework, encouraged through the voluntary application of classification standards consistent with the classification framework that currently exists in Australia, and incorporating a code of practice and a complaints handling procedure,
>
> an education component that could use services such as EdNA to assist parents and teachers in protecting children from unsuitable material, and
>
> the introduction of offence provisions to provide sanctions against persons who deliberately breach community standards. [78]

A Senate Committee [79] has made a number of recommendations concerning the obligations of service providers and clients, restrictions on transactions of material that may be regarded as offensive, incorporation of strong cryptography and classification of material.

Confusingly, the Australian Broadcasting Authority has also been requested by its Minister to consider the content of on-line services, although this is said involve a broader and more detailed examination of content available through on-line services than has been addressed in the consultation paper. A notable difficulty for government is that the 'synergy of networking' may be offset by the redundancy and waste of resources as different arms of government pursue policy formulation in relation to information areas that they legitimately see as part of their own province. One trusts that initiatives such as the National Information Services Council and the Office of the Chief Information Officer can provide the leadership that will surmount this problem. [80]

NOTES

1. P.J. Judge, *National Information Policy* (Canberra: Department of the Parliamentary Library, 1985-86) (Legislative Research Service Discussion Paper number 2).
2. Australia. Department of Science, *A National Information Policy for Australia: Discussion Paper* (Canberra: Department of Science, 1985).
3. Australia. Parliament. House of Representatives. Standing Committee for Long Term Strategies, *Australia as an Information Society : Grasping New Paradigms : Report* (Canberra: AGPS, May 1991).
4. The chairman of the committee was the Australian Labor Party politician Barry Jones. Jones, known internationally for his book on the information society, *Sleepers Wake! Technology and the Future of Work* (Melbourne: Oxford University Press, 1982), led the development of the ALP approach, particularly as Minister for Science. He had a large part to play in the *Grasping New Paradigms* document, but was unsuccessful in attuning government colleagues to a policy agenda.
5. S. Fist, "Does Australia need a national information policy?" *Australian Communications*, (December-January, 1993-94): 77-84.
6. J.F. McLaughlin and A.E. Birinyi, "Mapping the information business", in *Understanding New Media: Trends and Issues in Electronic Distribution of Information*, ed. B.M. Compaine, (Cambridge, Mass.: Ballinger, 1984): Fig 2-35.
7. Thus a parcel delivery agency is seen as being primarily a service-conduit, dictation equipment is seen as being product-conduit, a videotex system is seen as being service-content and books are seen as being product-content.

8. '...a series of components, including the collection of public and private high-speed, interactive, narrow and broadband networks that exist today and will emerge tomorrow. It is the satellite, terrestrial, and wireless technologies that deliver content to homes, businesses, and other public and private institutions. It is the information and content that flows over the infrastructure whether in the form of databases, the written word, a film, a piece of music, a sound recording, a picture, or computer software. It is the computers, televisions, telephones, radios, and other products that people will employ to access the infrastructure. It is the people who will provide, manage, and generate new information, and those that will help others do the same. And it is the individual Americans who will use and benefit from the NII. The NII is a term that encompasses all these components and captures the vision of a nationwide, invisible, seamless, dynamic web of transmission mechanisms, information appliances, content, and people." from U.S. National Information Infrastructure Advisory Council, *Common Ground: Fundamental Principles for the National Information Infrastructure*. (March 1995) <URL gopher://ntiant1.ntia.doc.gov:70/h0/advcouncil/files/commonground.html>

9. Victoria *Freedom of Information Act*, no. 9859 of 1982.

10. The Victorian Department of Premier and Cabinet maintains *Information Technology & Telecommunications Policies and Guidelines* at <URL http://www.dpc.vic.gov.au/ocmpol/12a.htm/>

11. <URL http://www.vicnet.net.au/vicnet/it.html/>

12. The Information Industries Board <URL http://courage.cc.uq.oz.au/> produced the *Queensland Information Technology Industry Strategic Plan* (Brisbane: 1992).

13. *IT2000* (Adelaide*:* 1994). <URL http://dino.slsa.sa.gov.au/sagov/it2000.htm>

14. Ipswich City Council <URL http://gil/ipswichcity.qld.gov.au/home.html/> initiated *Global Info-Links* <URL http://iccub.ipswichcity.qld.gov.au/>

15. These are the international Open System Interconnection standards under development since 1977 as encompassed in the Australian Government OSI Profile.

16. IESC, an interdepartmental committee comprised of senior officers from six Commonwealth Departments and Agencies, was established in 1985 within the then Commonwealth Public Service Board, and moved to the Department of Finance in 1987 to provide a central body for the co-ordination of policies and strategies relating to government IT and telecommunications issues, and for promotion of the exchange of information between government agencies.

17. Extracted from: *Statement of Direction for Australian GOSIP* (Canberra: IESC, 1993).

18. Australia. Information Exchange Steering Committee, *Australian Government Guide to Open Systems* (Canberra: Department of Finance Information Technology and Systems Group Financial Management Division, July 1993).

19. Tony Barry *Caught in the Web - Australian Government Network Policy* (1995) <URL http://ningaui.anu.edu.au/CNASI/gov/augov/w5/paper.html>, draft paper for AUUG'95 and Asia-Pacific World Wide Web '95 Conference and Exhibition, 18-21 September, Sydney <URL http://www.csu.edu.au/special/conference/>

20. All commonwealth government legislation that is referenced in this document was available in hypertext form from the Australian Legal Information Institute <URL http://austlii.law.uts.edu.au/> at the time of writing, based on the *Commonwealth's Consolidated Acts* as at May 1995. It was not certain that these would continue to be updated.

21 Australia. *Broadcasting Services Act*, 1992 <URL http://austlii.law.uts.edu.au/au/legis/cth/consol_act/bsa1992214/>

22. C. Spurgeon and P. Chadwick, *Australia in the Information Age* (Sydney: Communications Law Centre, 1992).

23. The *Broadcasting Act*, 1942 from its 1956 amendment was henceforth to be cited as *Broadcasting and Television Act*, 1942.

24. J. Hawke, "Privatising the public interest: the public and the Broadcasting Services Act 1992", in J. Craik, J.J. Bailey, and A. Moran eds. *Public Voices, Private Interests: Australia's Media Policy* (St Leonards, NSW: Allen & Unwin, 1995): 33-50.

25. *Australian Broadcasting Corporation Act*, no. 6 of 1983 <URL http://austlii.law.uts.edu.au/au/legis/cth/consol_act/abca1983361/>

26. Australia. *Special Broadcasting Service Act*, no. 180 of 1991. <URL http://austlii.law.uts.edu.au/au/legis/cth/consol_act/sbsa1991254/>

27. The Fairfax Group publishes among other things, the long-established broadsheets, the *Sydney Morning Herald*, and the *Age* (in Melbourne).

28. M. Armstrong, D. Lindsay, and R. Watteson, *Media Law in Australia*, 3rd ed., (Melbourne: Oxford University Press, 1995).

29. *Committee of Inquiry into Telecommunications Services in Australia* (Canberra: 1982).

30. Australia. *Telecommunications Act*, 1991. <URL http://austlii.law.uts.edu.au/au/legis/cth/consol_act/ta1991214/>. Telecom had itself been created in 1975 from the division of the former Postmaster General's Department into Telecom and Australia Post, and then merged with the hitherto separately functioning OTC

Ltd that provided the country's international communications. It was reconstituted as Telstra <URL http://www.telstra.com/> under the *Telstra Act*.

31. Issued as a press release *A new era in telecommunications* (Department of Communications and the Arts, 1995) <URL http://www.dca.gov.au/media_files/post97d.htm>

32. P. Leonard, P. Waters and B. Fisse, "Essential facilities in telecommunications, part I", *Telecommunications Law & Policy Review*, 3, no. 6 (1995): 56-60.

33. Australia. *Radiocommunications Act*, 1992 <URL http://austlii.law.uts.edu.au/au/legis/cth/consol_act/ra19922181/>

34. Australia. *Archives Act*, no. 79 of 1983. <URL http://austlii.law.uts.edu.au/au/legis/cth/consol_act/aa198398/>

35. Australia. *National Library Act*, no. 69 of 1960 <URL http://austlii.law.uts.edu.au/au/legis/cth/consol_act/nla1960177/>

36. The Communications Futures Project was initiated within Australia's Bureau of Transport and Communications Economics with the aim of exploring Australia's communications market economics over the decade 1995 - 2005.

37. Australian Bureau of Transport and Communications Economics, *Communications Futures - Final Report* (Canberra: AGPS, 1995). <URL http://www.dca.gov.au/comms_project/contents.htm>

38. Australia. *Evidence Act*, no. 4 of 1905. <URL http://austlii.law.uts.edu.au/au/legis/cth/consol_act/ea199580/>

39. Australia. Department of Communications and the Arts, *Creative Nation: Commonwealth Cultural Policy* (Canberra: October 1994). <URL http://www.nla.gov.au/creative.nation/contents.html>

40. Cutler & Company, *Commerce in Content - Building Australia's International Future in Interactive Multimedia Markets: a Report for the Department of Industry, Science and Technology, CSIRO, and the Broadband Services Expert Group*, (Canberra: September 1994). <http://www.nla.gov.au/misc/cutler/cutlercp.html>

41. Excerpted from *Creative Nation* <URL http://www.nla.gov.au/creative.nation/filmtv.html>

42. Excerpted from *Creative Nation* <URL http://www.nla.gov.au/creative.nation/multimed.html>

43. M. Cooper, "The politics of culture", *Communications Law Bulletin*, 14, no. 2 (1995): 1-3.

44. Australia. *Copyright Act*, no. 63 of 1968 <URL http://austlii.law.uts.edu.au/au/legis/cth/consol_act/ca19681331/>

45. OLAA is a private company owned by Monash University through which a consortium of nine universities offers courses. Courses in Australian studies presently offered by OLAA have made substantial use of the holdings of national cultural institutions. <URL http://www.ola.edu.au>

46. OLTC was established by commonwealth, state and territory Education and Training Ministers. <URL http://www.oltc.edu.au>

47. WORLD 1 and National Document & Information Service (NDIS) Project <URL http://www.nla.gov.au/2/NDIS>

48. Australian Archives <URL http://www.aa.gov.au>

49. Australia. *Privacy Act*, no. 119 of 1988; Australia. *Freedom of Information Act*, no. 3 of 1982.

50. Australia. Information Exchange Steering Committee Electronic Data Management Subcommittee, *Management of Electronic Documents in the Australian Public Service* (Canberra: Department of Finance, 1993).

51. Australian Science and Technology Council, *The Networked Nation* (Canberra: AGPS, 1994). <URL http://astec.gov.au/astec/net_nation/contents.html>

52. *Response to the Report of the Australian Science and Technology Council (ASTEC), "The Networked Nation"* (1995). <URL http://astec.gov.au/astec/net_nation/response.html>

53. Broadband Services Expert Group, *Networking Australia's Future: Interim Report* (Canberra: July 1994) <URL http://www.telstra.com.au/mirror/bseg/start.html>

54. Broadband Services Expert Group, *Networking Australia's Future: Final Report* (Canberra: AGPS, December 1994) <URL http://www.dca.gov.au/toc.htm>

55. <URL http://www.dca.gov.au/intro.htm#sar>

56. <URL http://www.dca.gov.au/intro.htm#sar>

57. <URL http://www.dca.gov.au/intro.htm#sar>

58. <URL http://www.dca.gov.au/intro.htm#sar>

59. <URL http://www.dca.gov.au/intro.htm#sar>

60. <URL http://www.dca.gov.au/intro.htm#sar>

61. *Response to the Report... (ASTEC)*

62. National Information Services Council, *Agenda Papers for the First Meeting of the Council* (August 1995). <URL http://www.nla.gov.au/pmc/nisc/aug95/nisc1.html>

63. CSIWP <URL http://www.nla.gov.au/finance/csiwp/>

64. Provision by NLA at <URL http://www.nla.gov.au/oz/gov/ozgov.html>

65. Australian government home page <URL http://gov.info.au/>

66. <URL http://www.nla.gov.au/finance/csiwp/guide.html>

67. *CIN: Community Information Network* (Canberra: Australian Department of Social Security, 1995 -) <URL http://www.cin.gov.au/>

68. *Establishment of Education Network Australia* (Canberra: Department of Employment Education and Training, June 1995) <URL http://www.deet.gov.au/edna/estbmsg2.htm>

69. Open Net Ltd - the Education Network for Australia <URL http://www.opennet.net.au/OPENNET/company-info.html>

70. Information Technology Review Group, *Clients first: the challenge for government information technology - Report of Minister for Finance's Information Technology Review Group* (March 1995) <URL http://www.nla.gov.au/finance/itreview/final/itrg-tc.html>

71 <URL http://www.nla.gov.au/finance/itreview/final/summary.html>

72 <URL http://www.nla.gov.au/finance/itreview/final/summary.html>

73 <URL http://www.nla.gov.au/finance/itreview/final/summary.html>

74 <URL http://www.nla.gov.au/finance/itreview/final/summary.html>

75 <URL http://www.nla.gov.au/finance/itreview/final/summary.html>

76 <URL http://www.nla.gov.au/finance/itreview/final/summary.html>

77. Australia. Parliament. House of Representatives. Standing Committee for Long Term Strategies, *Australia as an Information Society : Grasping New Paradigms : Government Response* (Canberra: AGPS, 1992).

78. *Consultation Paper on the Regulation of On-line Information Services* (7 July 1995) <URL http://www.dca.gov.au/paper_2.html>

79. Australia. Senate Select Committee on Community Standards Relevant to the Supply of Services Utilising Electronic Technologies. *Report on Regulation of Computer On-line Services Part 2* (November 1995) <URL http://senate.aph.gov.au/committee/csrssuet.rep/report.html>

80. Further reference to a range of government policy initiatives may be found in: Tony Barry, *Australian Government Network Policy - a Bibliography* (1995 -) <http://snazzy.anu.edu.au/gov/augov/bibl.html>